



*Protection and Restoration of Newport Beach Marine
Life Refuge – Implementing the Goals of the
California Ocean Protection Council Strategic Plan at
Little Corona*



November 2006



A

D

C

Upper Newport Bay CCA
CCA #69

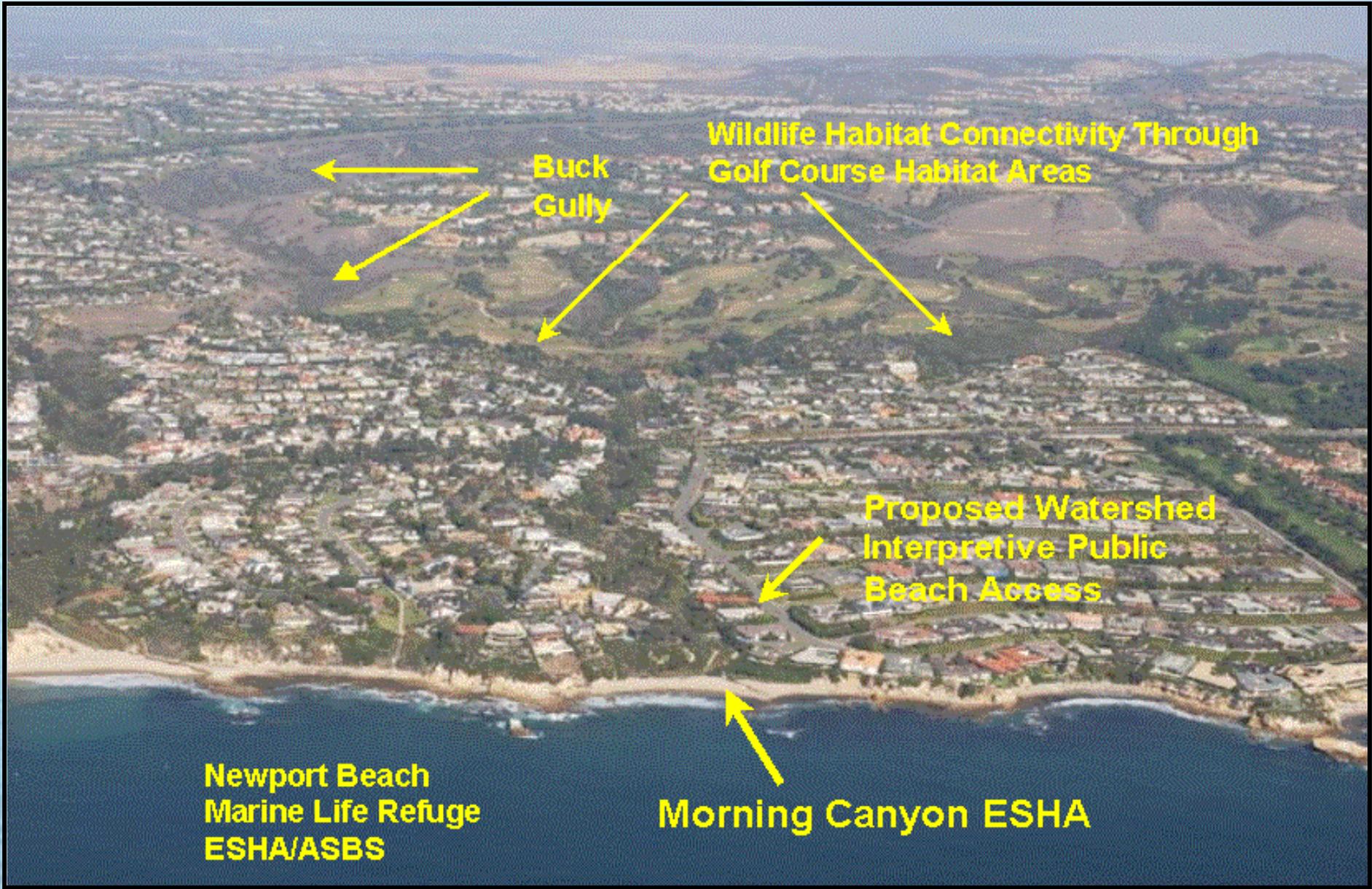
B Newport Beach Marine Life Refuge
ASBS #32

B Irvine Coast Marine Life Refuge
ASBS #33

B Heisler Park Ecological Reserve
ASBS #30



Image © 2005 DigitalGlobe



**Buck
Gully**

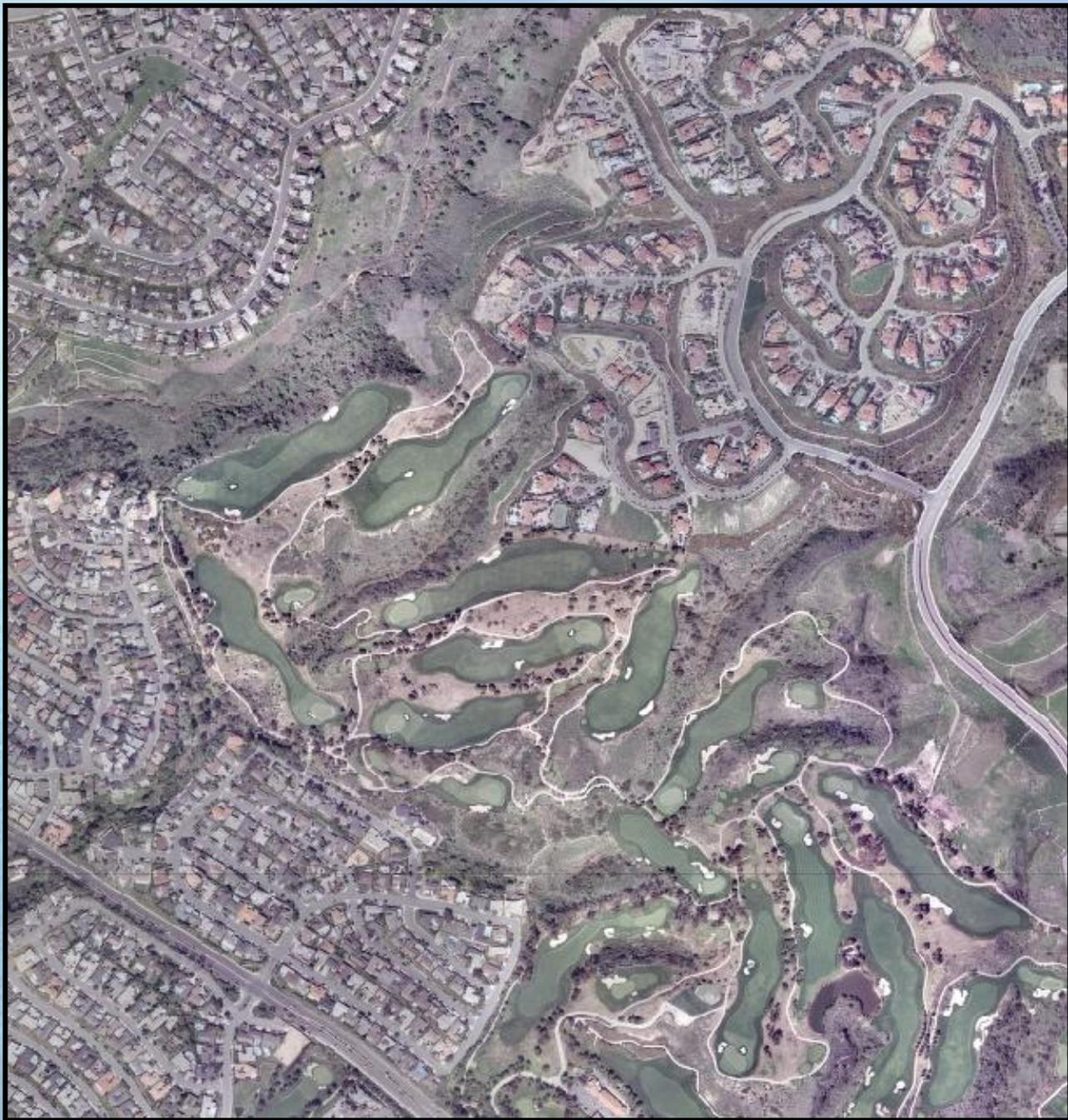
**Wildlife Habitat Connectivity Through
Golf Course Habitat Areas**

**Proposed Watershed
Interpretive Public
Beach Access**

Morning Canyon ESHA

**Newport Beach
Marine Life Refuge
ESHA/ASBS**











Looking east across the canyon toward the slope at 621 Rockford Rd.



Looking down stream (south). Note the loss of a large tree from the most recent rainstorm



Looking up stream (north). Note that the scour hole is significantly wider and deeper since the latest storm.



MAR 7 2005









LITTLE CORONA

CROSS CONTAMINATION:
Tidal Current from
Lower Newport Bay

DRY WEATHER &
STORMWATER EVENTS

PUBLIC USE







Legend

-  Coastal Channels
-  Watershed Boundary
-  City Boundary

Coastal Channel Names:

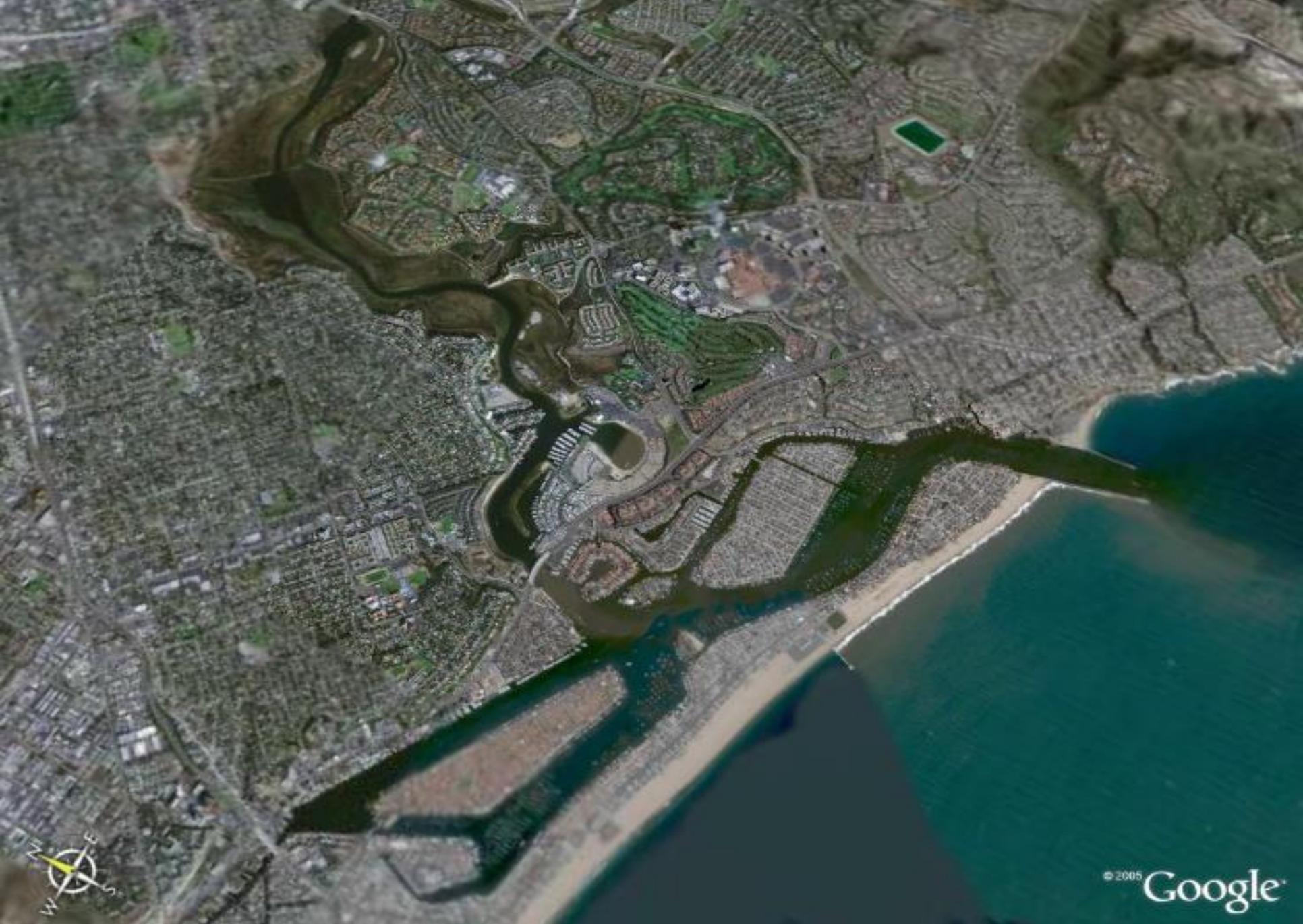
- A - Buck Gully Creek
- B - Morning Canyon Channel
- C - Pelican Point Creek
- D - Pelican Point Middle Creek
- E - Pelican Point Waterfall Creek
- F - Los Trancos Creek (Crystal Cove Creek)
- G - Muddy Creek
- H - Moro Canyon
- I - "ASBS" Newport Beach Marine Life Refuge
- J - "ASBS" Irvine Coast Marine Life Refuge


Newport Coast
 Watershed Management Area
 PIN # 404

* No Aerial Photo Data for this area


 N

 0 0.25 0.5
 Miles



© 2005 Google



Image © 2005 DigitalGlobe

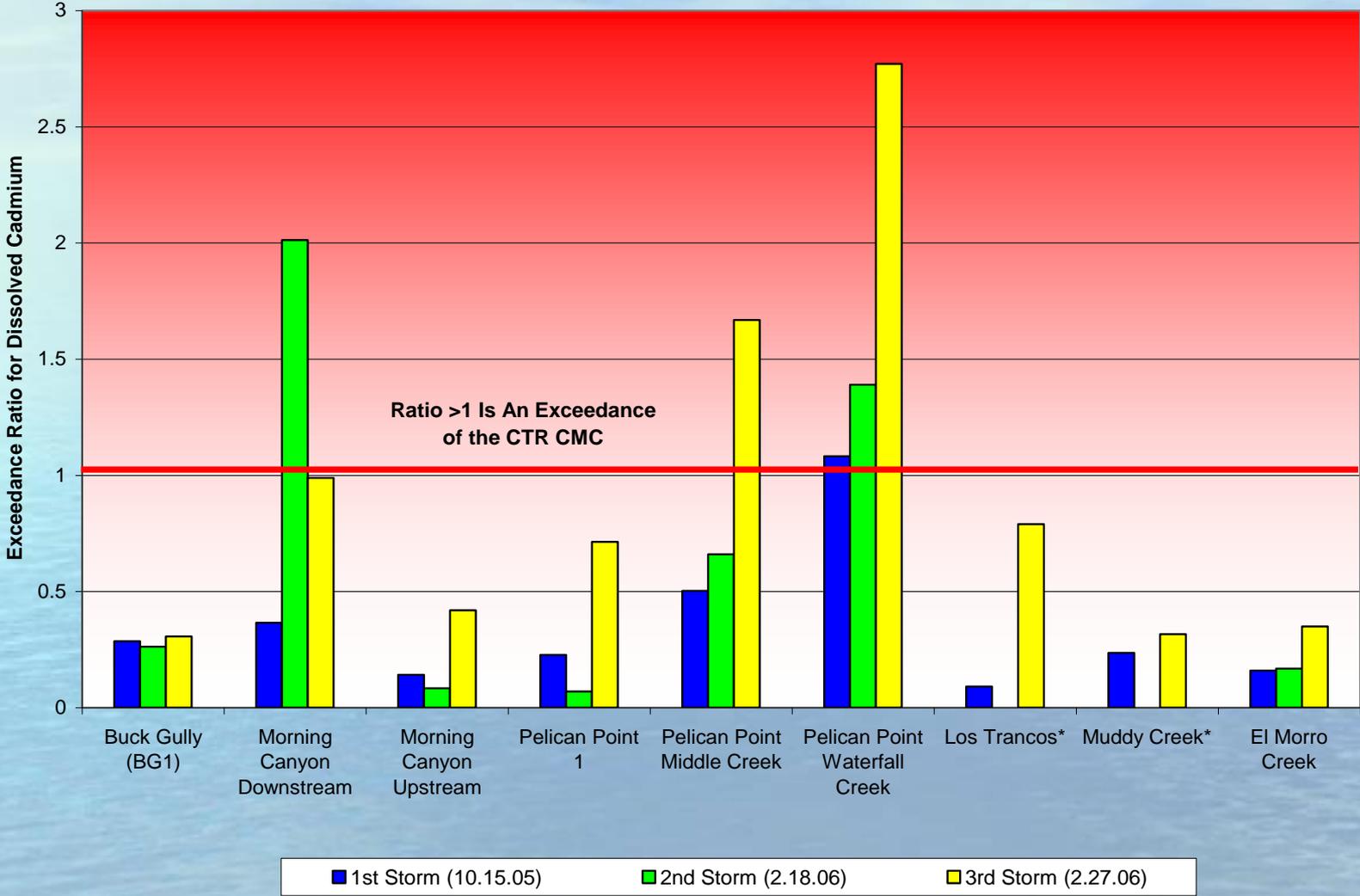
© 2005 Google

Pointer 33°35'25.72" N 117°51'42.96" W elev 108 ft

Streaming ||||| 100%

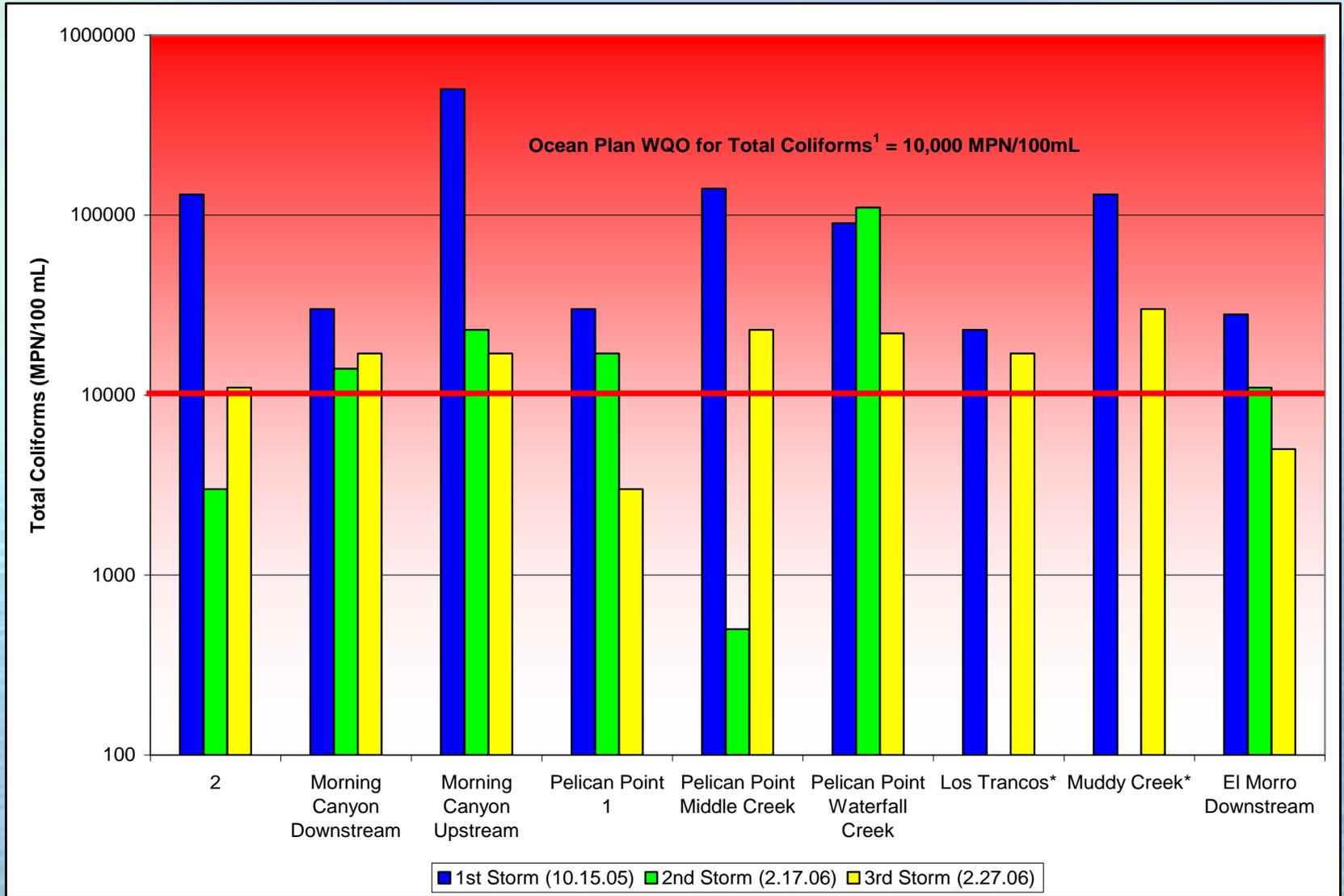
Eye alt 5049 ft

Results Summary of Water Quality and Flow Assessment – Wet Weather



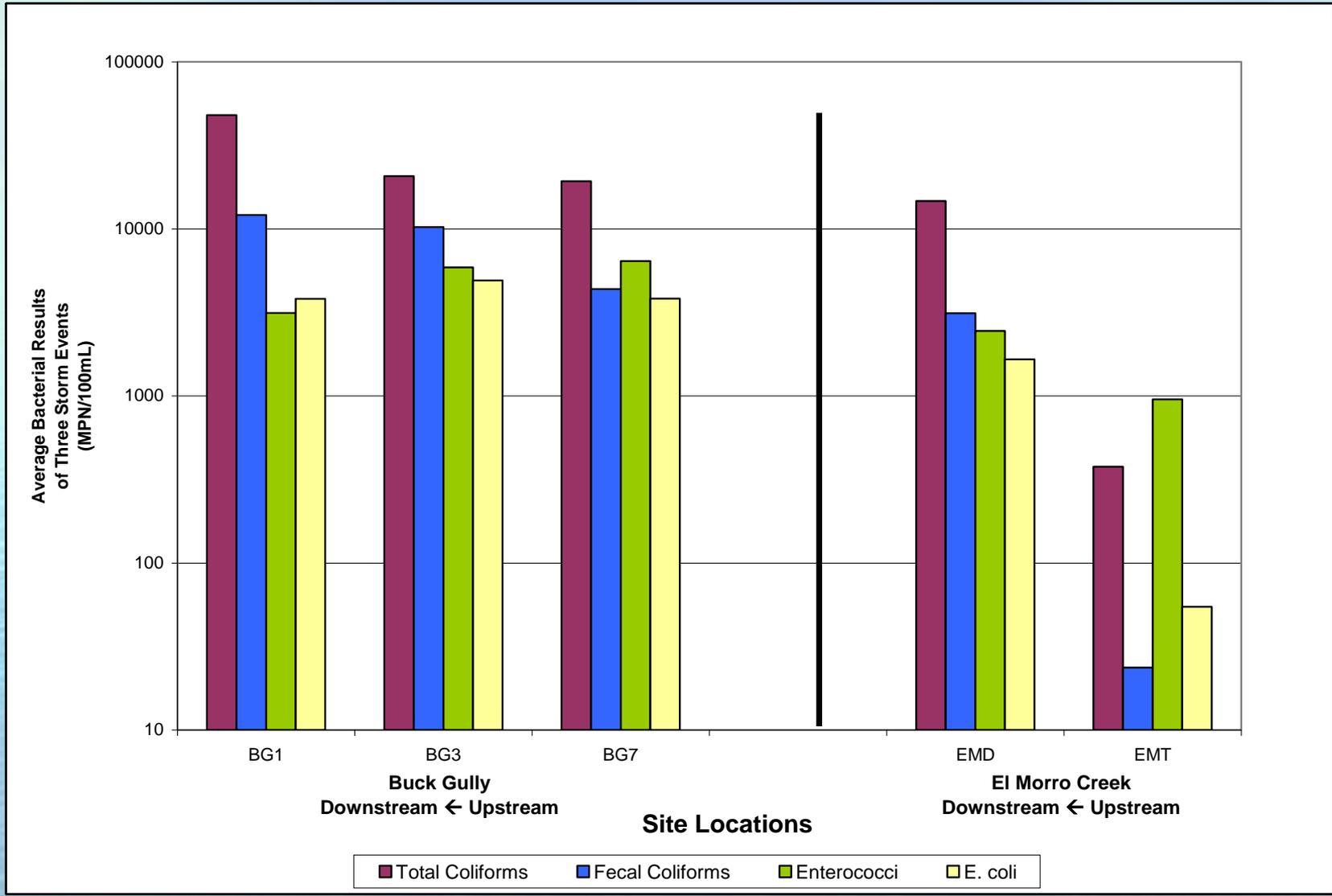
❖ Dissolved Cd Constituent of Concern in Pelican Point Middle Creek and Morning Canyon

Results Summary of Water Quality and Flow Assessment – Wet Weather



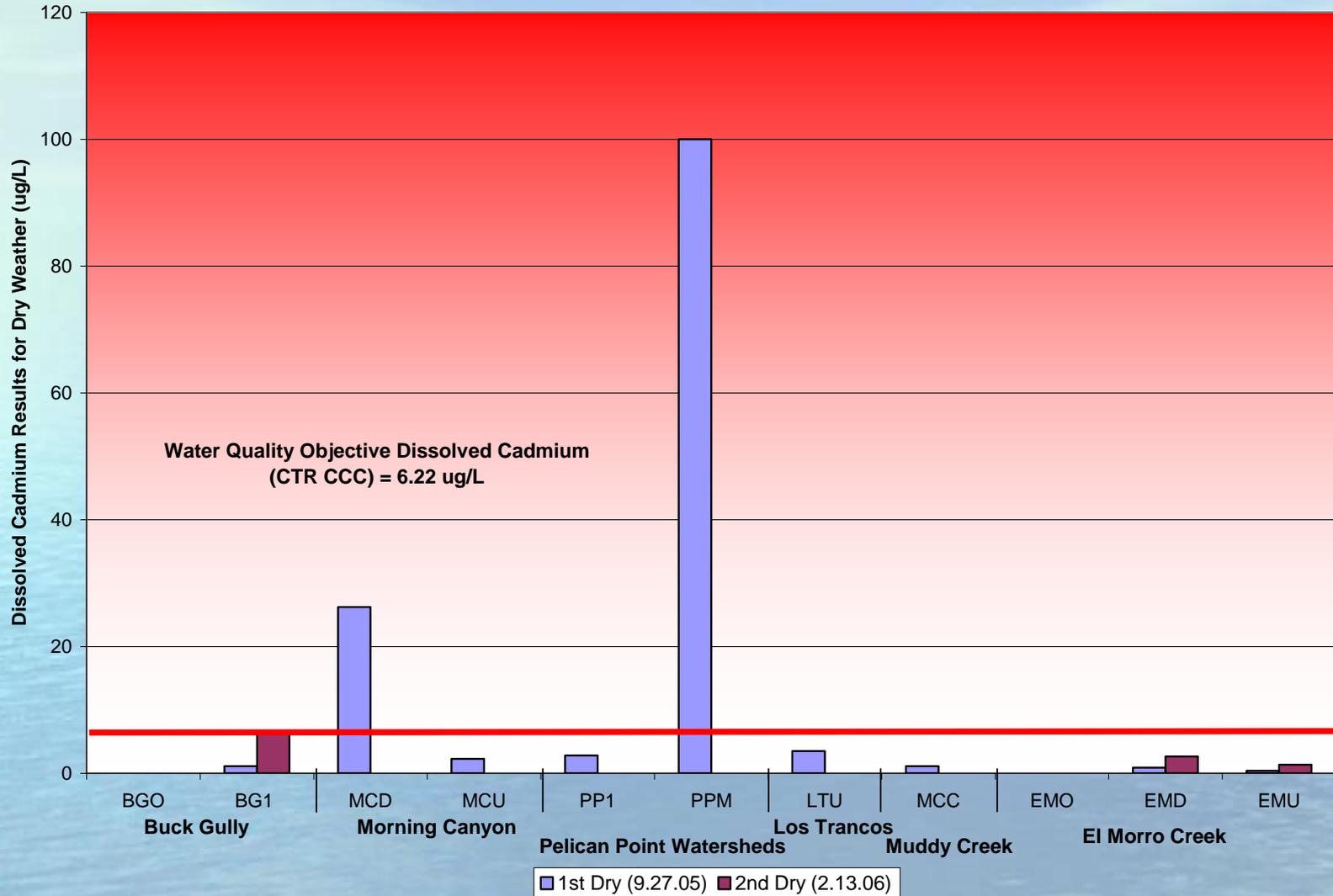
❖ Bacteria an Issue in all Canyons during Storm Events

Results Summary of Water Quality and Flow Assessment – Wet Weather



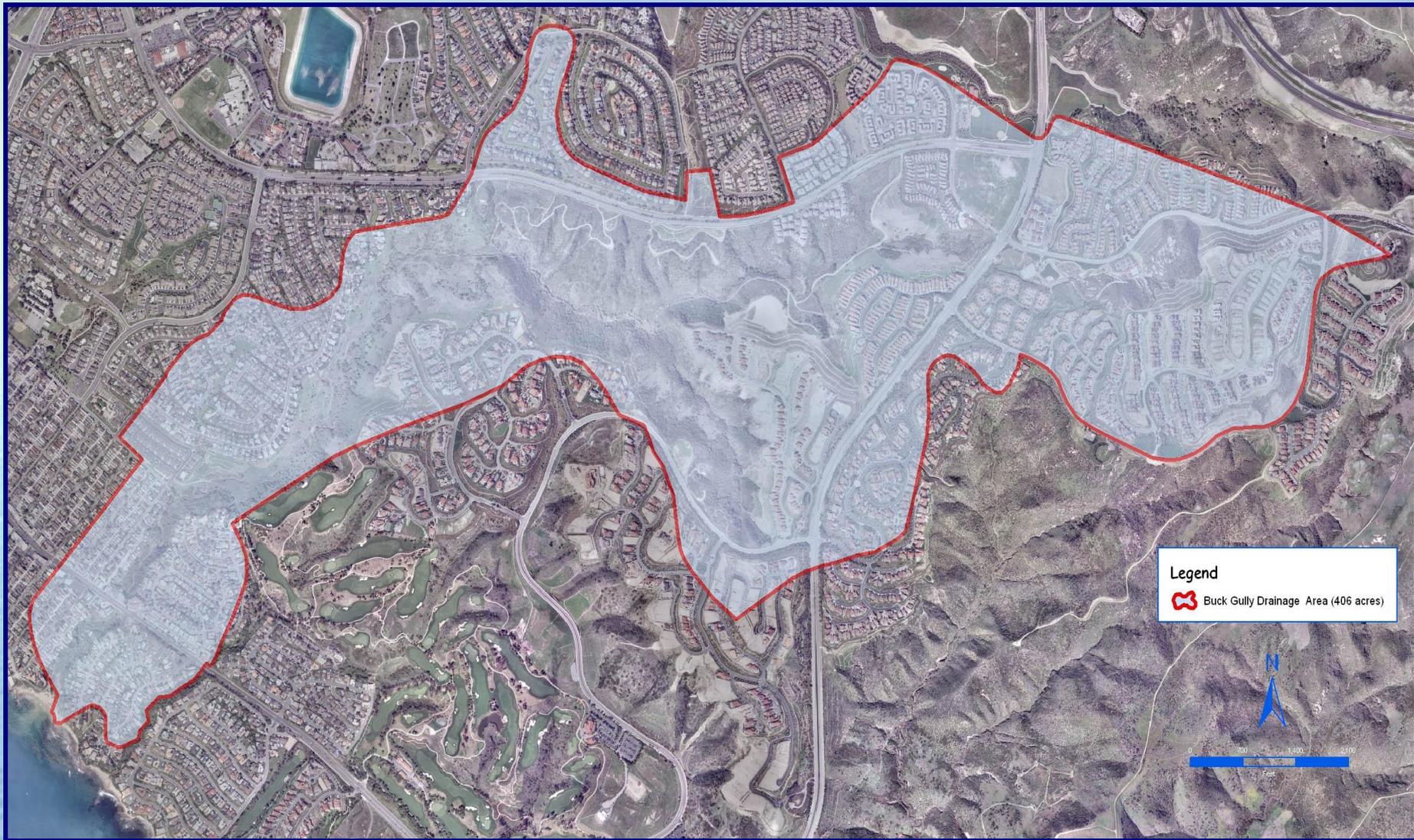
❖ Bacteria above WQO in Ocean at BG and Reference

Results Summary of Water Quality and Flow Assessment – Dry Weather

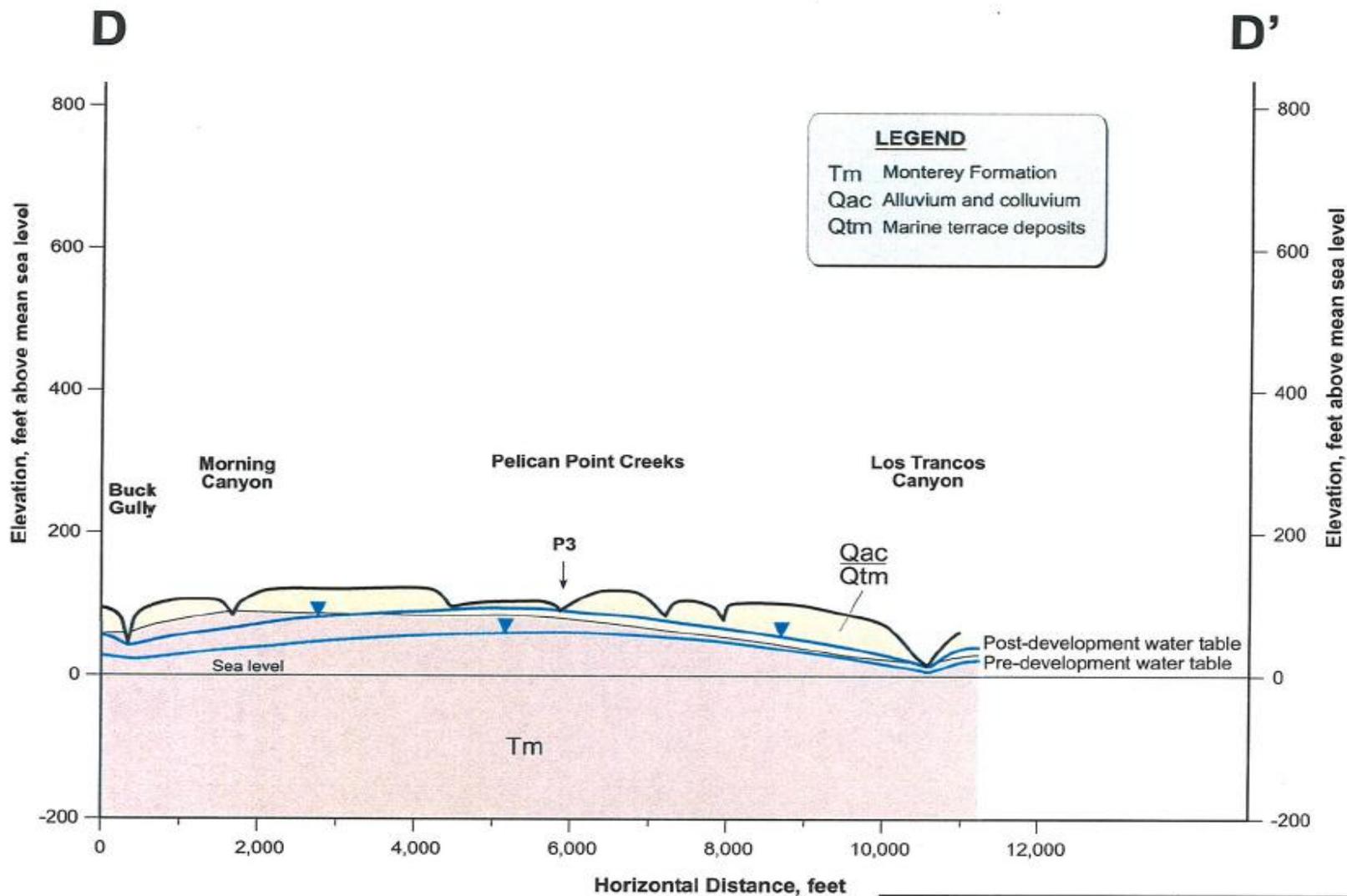


- ❖ Dry Weather Flows Contribute 80% of Metals Loading
- ❖ Reductions in Dry Weather Flow – Address Metals

Buck Gully Drainage Area



Newport Coast Groundwater Seepage Study - Todd Engineers



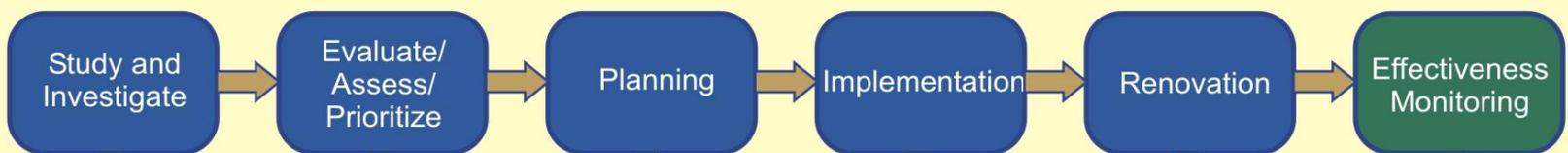
March 2006

TODD ENGINEERS
Emeryville, California

Figure 9
Geologic Cross
Section D - D'

Initial Program Elements

Begin Primary Program Elements



POTENTIAL SOURCES OF IMPACTS

	Study and Investigate	Evaluate/ Assess/ Prioritize	Planning	Implementation	Renovation	Effectiveness Monitoring
COASTAL CANYON CREEK WATERSHEDS <ul style="list-style-type: none"> • Dry weather flows • Storm Flows 	<ul style="list-style-type: none"> • Dry Weather Source ID Survey • Water Quality Flow Assessment • ASBS Sampling • Baseline Biological Surveys (Task 3) • Toxicity and Bioaccumulation Studies 	<ul style="list-style-type: none"> • Dry Weather COC Analysis (Cadmium, Bacteria) • Wet Weather COC/Load Analysis (Cadmium, Copper, Pesticides, Bacteria, TSS, Toxicity) • Develop Impact Metric for Watershed Inputs 	<ul style="list-style-type: none"> • Buck Gully Erosion and Sediment Control Plan • Newport Coastal Canyon Watershed Mgmt Plan • Laguna Canyon Creek Watershed 	<ul style="list-style-type: none"> • Implement Pilot/Prioritized BMPs-Source Control, Pollution Prevention, and Treatment BMPs • Runoff Reduction BMPs 	(Applies to All) • Pilot Renovation Project	<ul style="list-style-type: none"> • Monitor Effectiveness of BMPs to Reduce Impacts of Dry Weather Flows • Monitor Success of Pilot Renovation Project
PUBLIC USE <ul style="list-style-type: none"> • Trampling • Scavenging • Fishing 	<ul style="list-style-type: none"> • Public Use Survey (Task 1) • MMS Surveys of Adjacent Coastal Sites 	<ul style="list-style-type: none"> • Identify Activities of Highest Impact • Identify Indicator Species • Develop Impact Metric 	<ul style="list-style-type: none"> • Newport Coastal Canyon Watershed Mgmt Plan • Laguna Canyon Creek Watershed • Integrated Coastal Watershed Mgmt Plan 	<ul style="list-style-type: none"> • Implement Education Programs • Increase Docent Coverage • Marine Resource Video 		<ul style="list-style-type: none"> • Monitor Effectiveness of Education and Outreach to Reduce Public Impact
CROSS CONTAMINATION <ul style="list-style-type: none"> • Sediment Transport • Tidal Flow 	<ul style="list-style-type: none"> • Cross Contamination Study • Sediment Transport Model 	<ul style="list-style-type: none"> • Identify COC and Loading from Tidal Currents • Develop Impact Metric 	<ul style="list-style-type: none"> • Integrated Coastal Watershed Mgmt Plan • Harbor Area Mgmt Plan 	<ul style="list-style-type: none"> • TMDL Implementation for Newport Bay 		<ul style="list-style-type: none"> • Monitor Effectiveness of TMDL Efforts to Reduce Loadings
SEASONAL EFFECTS (La Niña/El Niño) <ul style="list-style-type: none"> • Temperature • Freshwater Inputs 	<ul style="list-style-type: none"> • Biological Surveys (Task 3) • Trend Data (Task 2) 	<ul style="list-style-type: none"> • Evaluate Seasonal Effects on ASBS • Develop Metric 		<ul style="list-style-type: none"> • Integrate Biological Monitoring with SCOOS- Data Management System 		<ul style="list-style-type: none"> • Monitor Seasonal Effect

Pollutant Pathways for Discharges from Newport Harbor





Location: Little Corona

Species: Mussell

ASBS Metric Example

PUBLIC USE

Item No.	Examples	Activity Level	Yearly visitors, fisherman students, etc.	Activity Percentage (note 1)	Damage Coefficient (note 4)	Weighted Damage
1	Fishing, Removal, Death	Heavy	20000	1%	1	200
2	Rough Handling Trampling through tidepools w/ boots	Moderate	20000	4%	0.1	80
3	Active walking on rocks Picking up multiple items and replacing	Active	20000	15%	0.01	30
4	Cautious walking Picking up item one time	Light	20000	80%	0.001	16
Total				100%		326

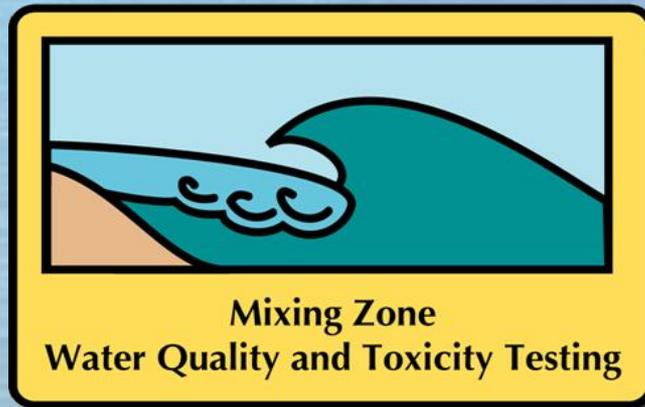
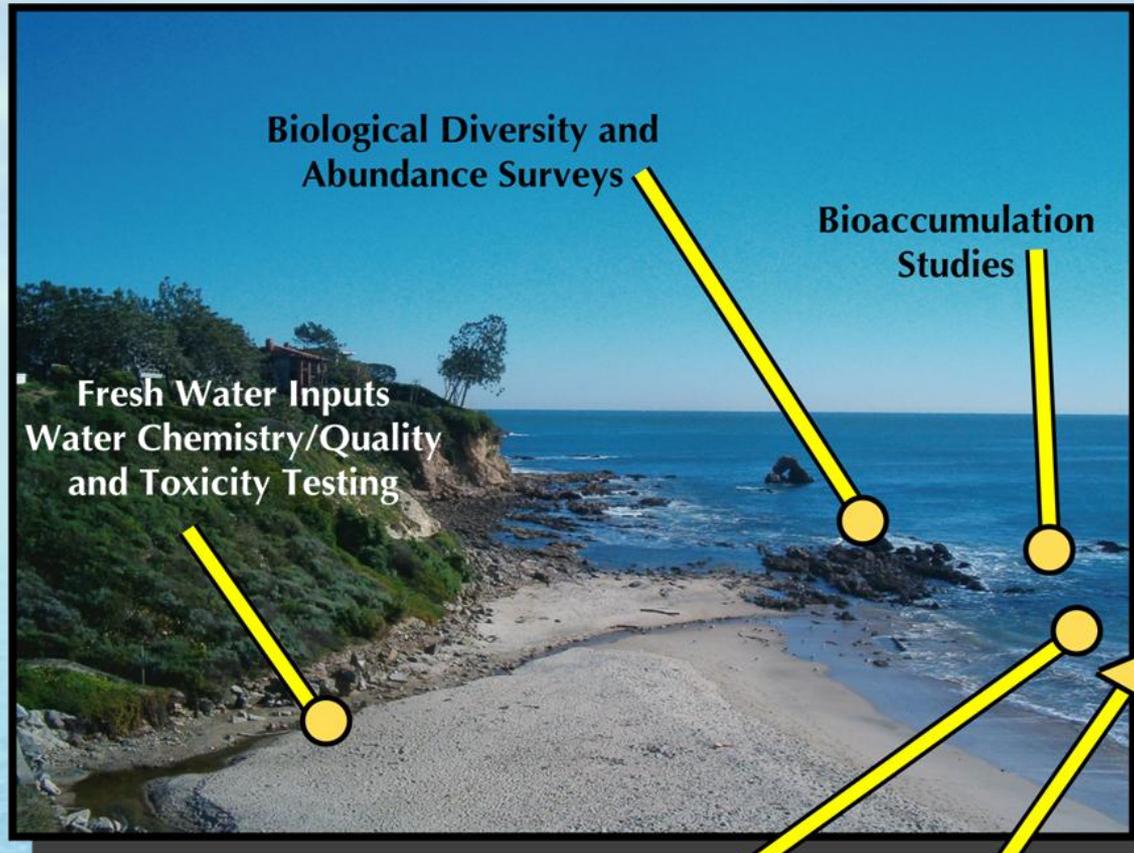
CANYON POLLUTION (Chronic Impact) Note 3

Constituent	Average Constituent Concentration (micrograms/liter)	Yearly Flow (gallons per year)	Damage Coefficient (Note 2)	Weighted Damage
1 Fecal Bacteria (MPN/ 100 m	75	200,000,000	1.00E-08	150
2 Diazanon	0.05	200,000,000	1.00E-05	100
3 Copper (total)	50	200,000,000	1.00E-08	100
4 Cat Feces	0.001	200,000,000	1.00E-04	20
5 Fine sediment	100	200,000,000	1.00E-09	20
Total				390

Notes

- 1 Based on field surveys
- 2 Health and reproduction impacts resulting in premature death based on average concentration based on the literature and lab results
- 3 There would be a separate table for Acute Impact
- 4 Based on field surveys and the literature

Assessment Components



Beyond Mixing Zone
Ocean Water Quality

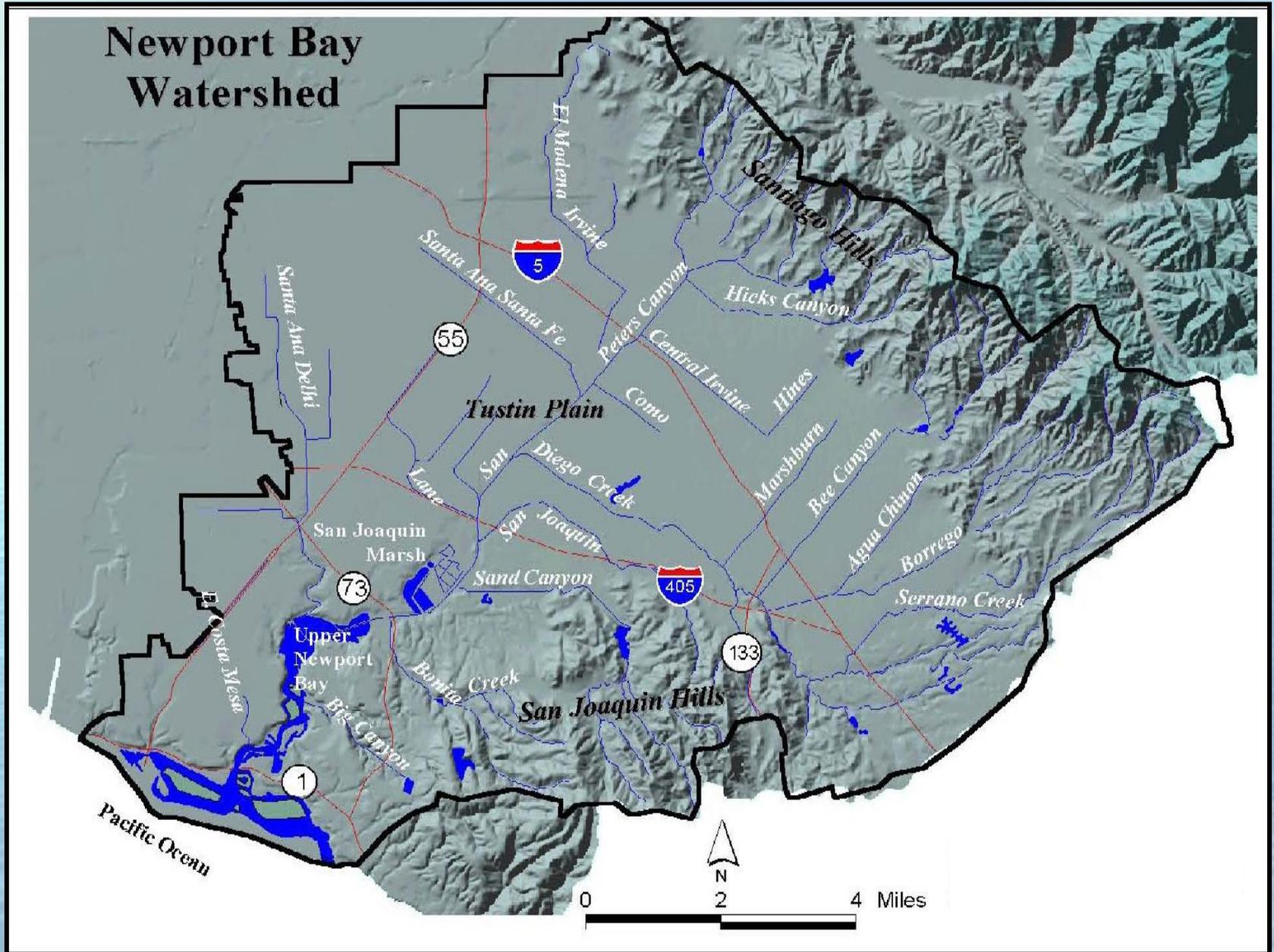


Pilot Renovation Project: Reintroduction of Rockweed

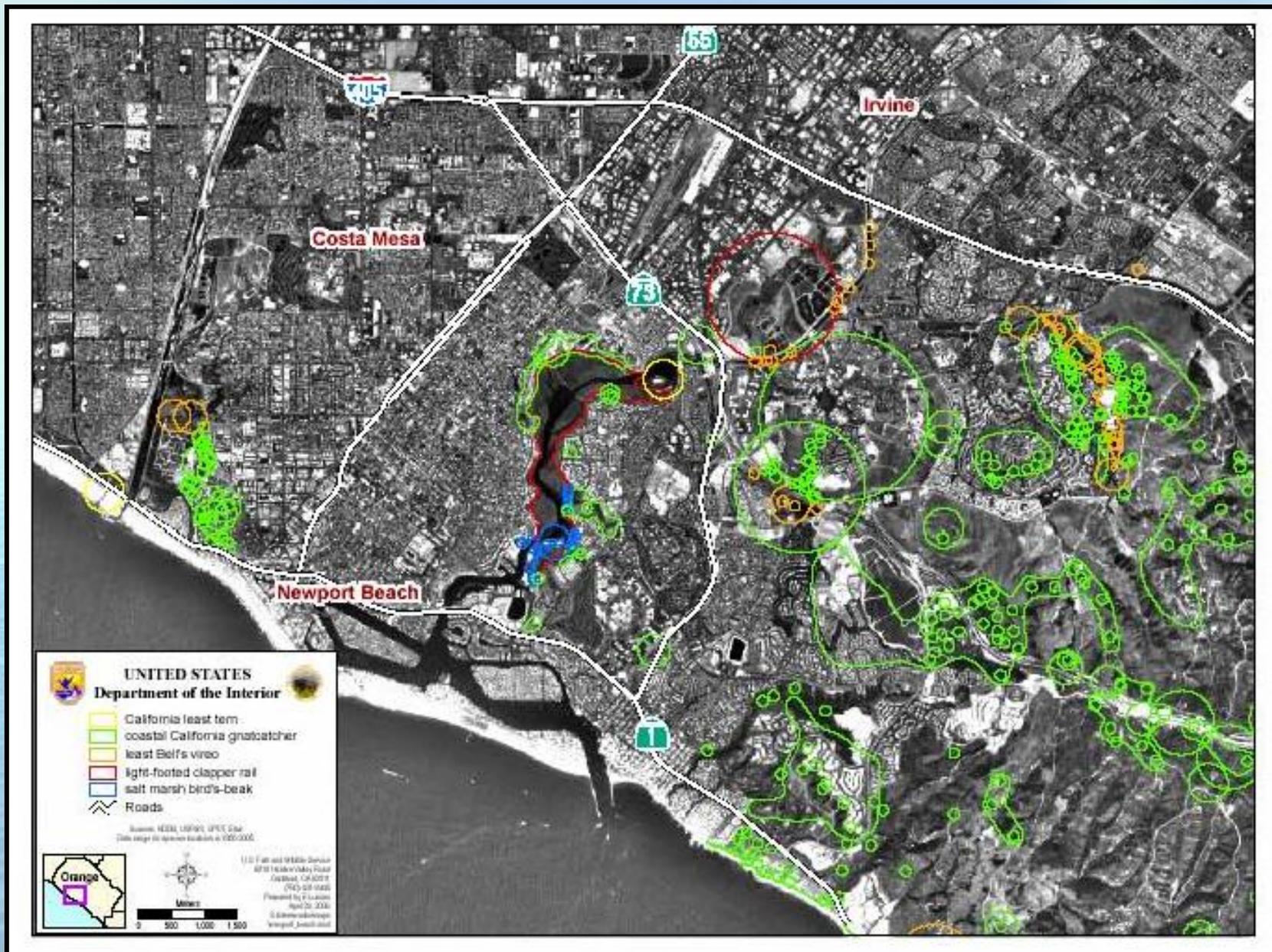
COOPERATIVE PARTNERS:

State Water Resources
Control Board
Regional Water Quality
Control Board
City of Laguna Beach
California Department of
Parks and Recreation
California Coastal Commission
Coast Keepers of Orange County
Surfriders
Friends of Newport Coast

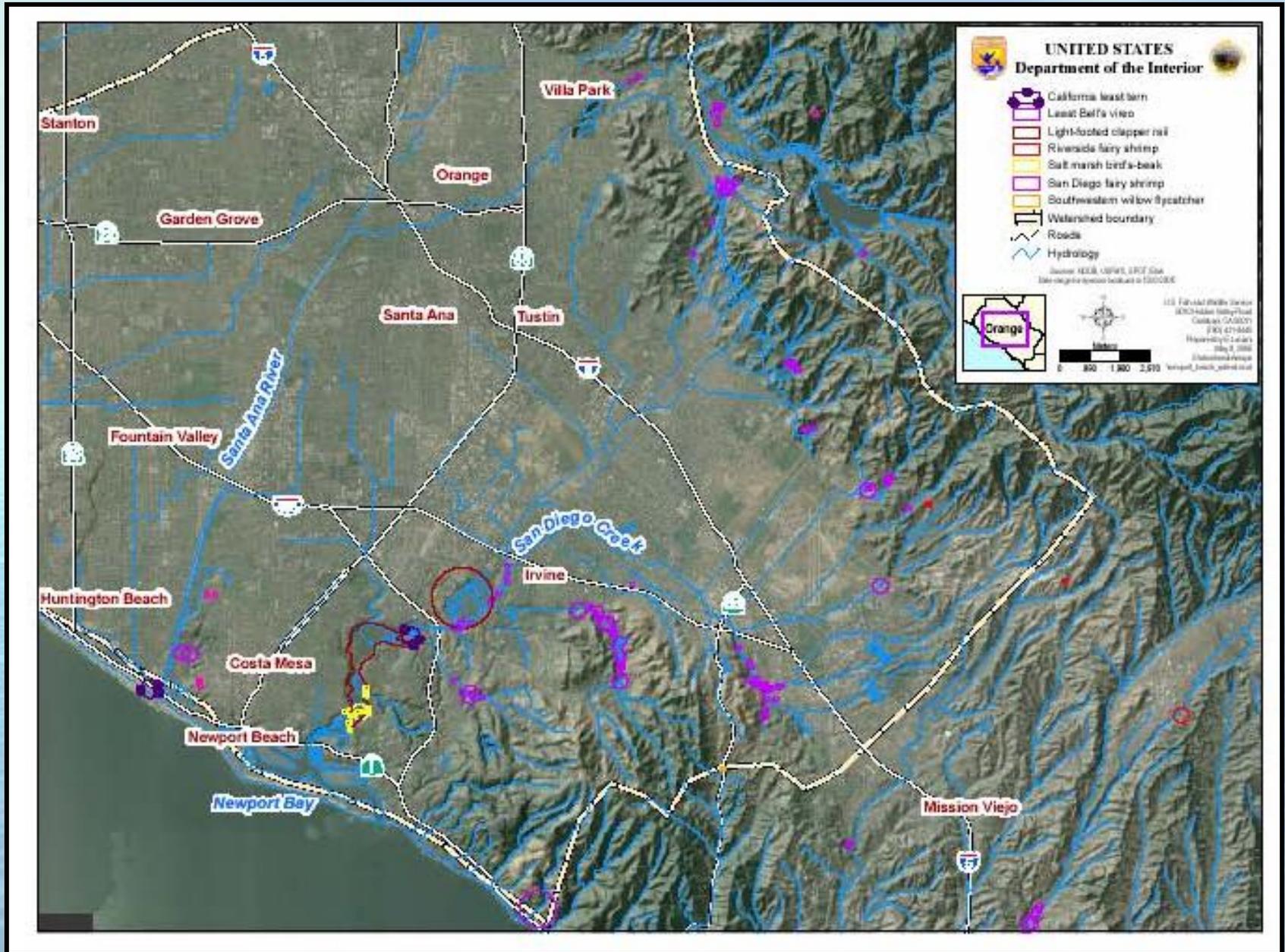
Topographic Map



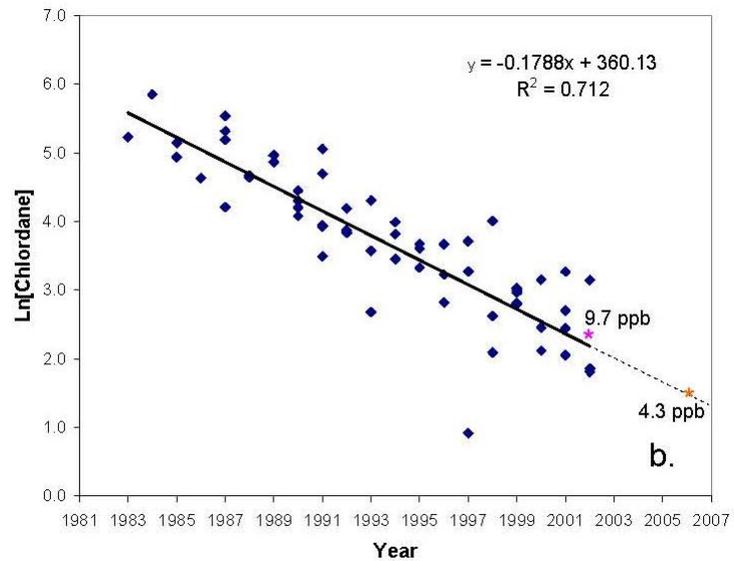
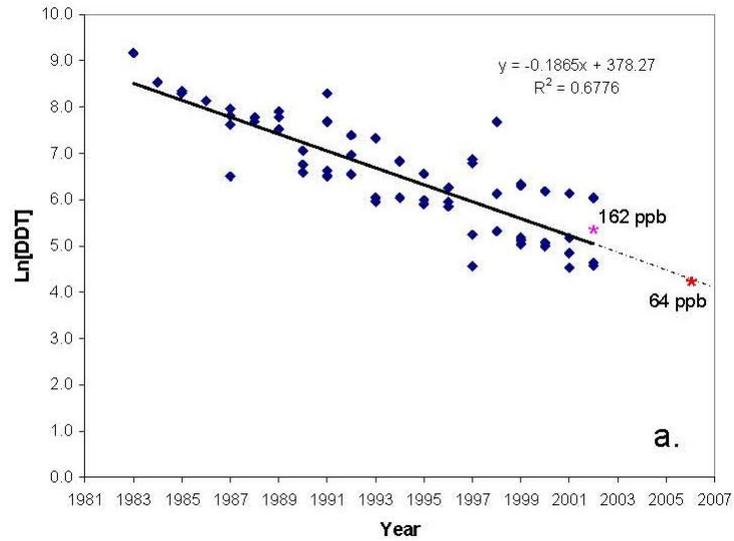
Federally-Listed Areas



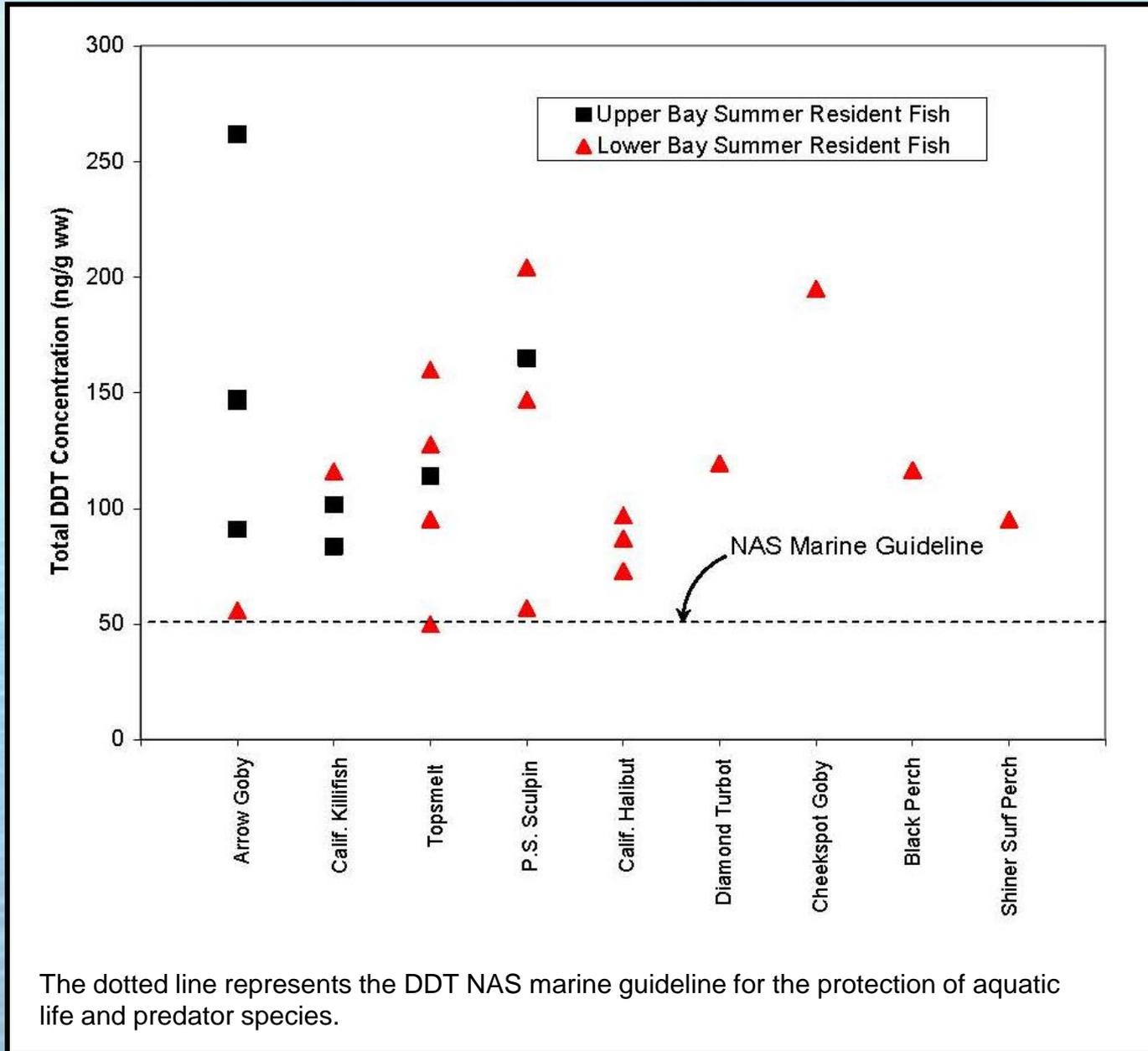
Plant and Wildlife Habitat Areas



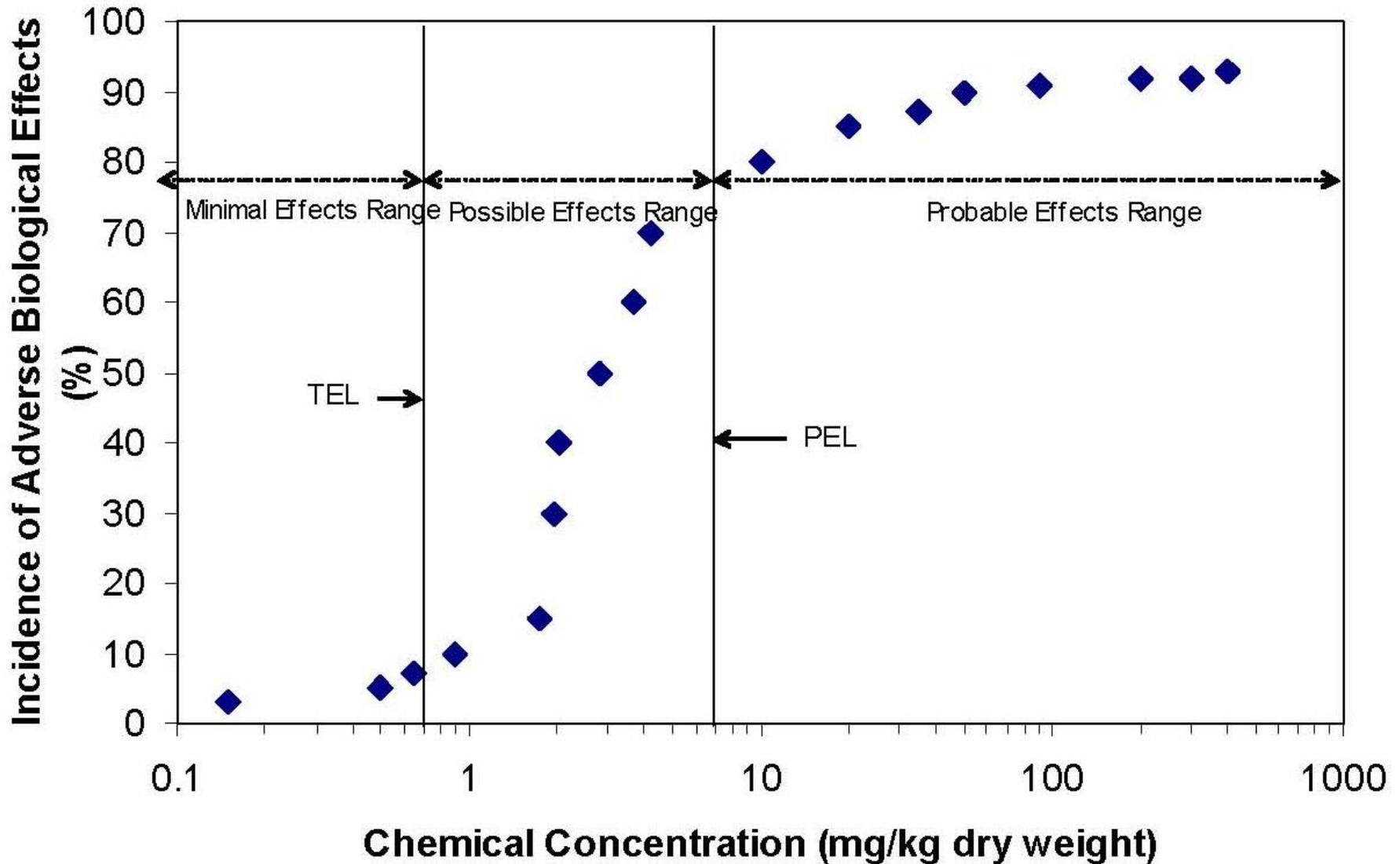
OC Concentration in Fish Tissue



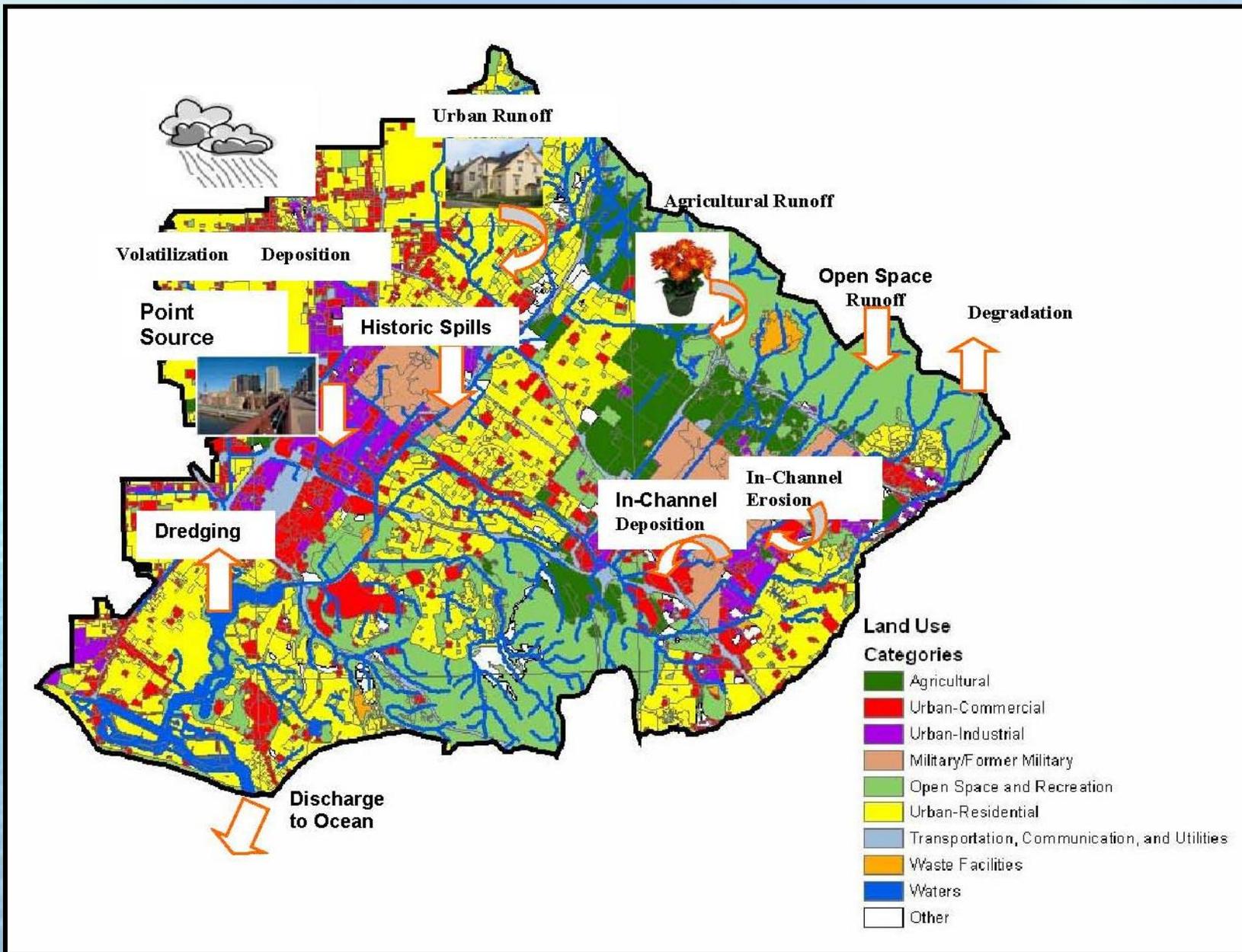
DDT Concentrations in Whole Fish



Observed Adverse Biological Effects



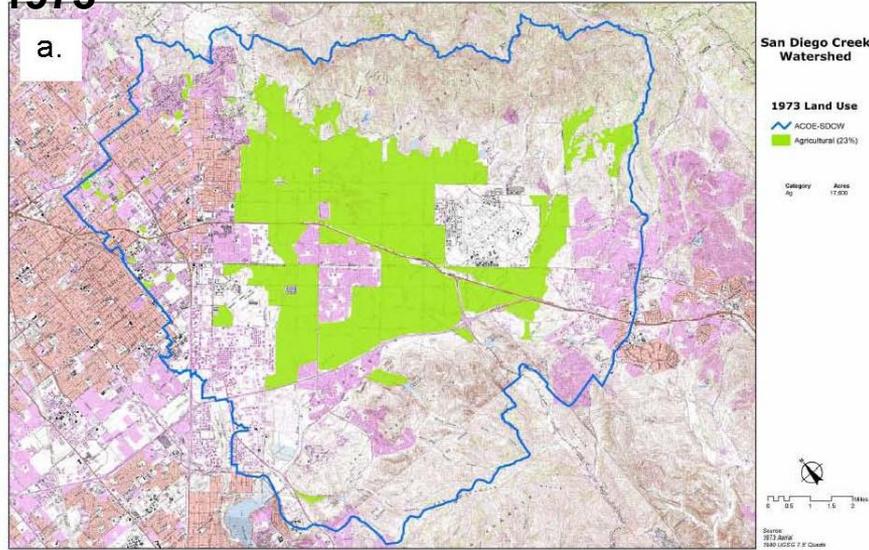
Sources, Pathways, and Reservoirs of OC



Agricultural Land Use

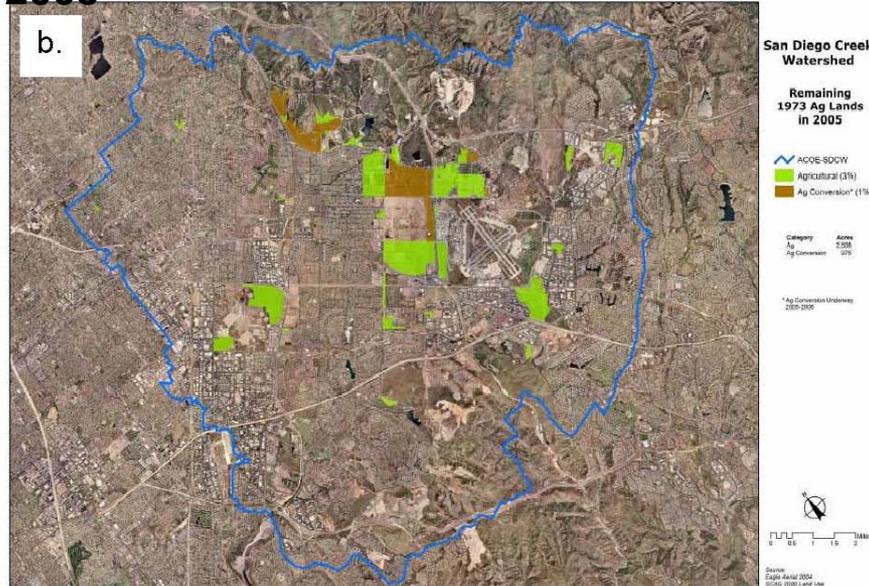
1973

a.

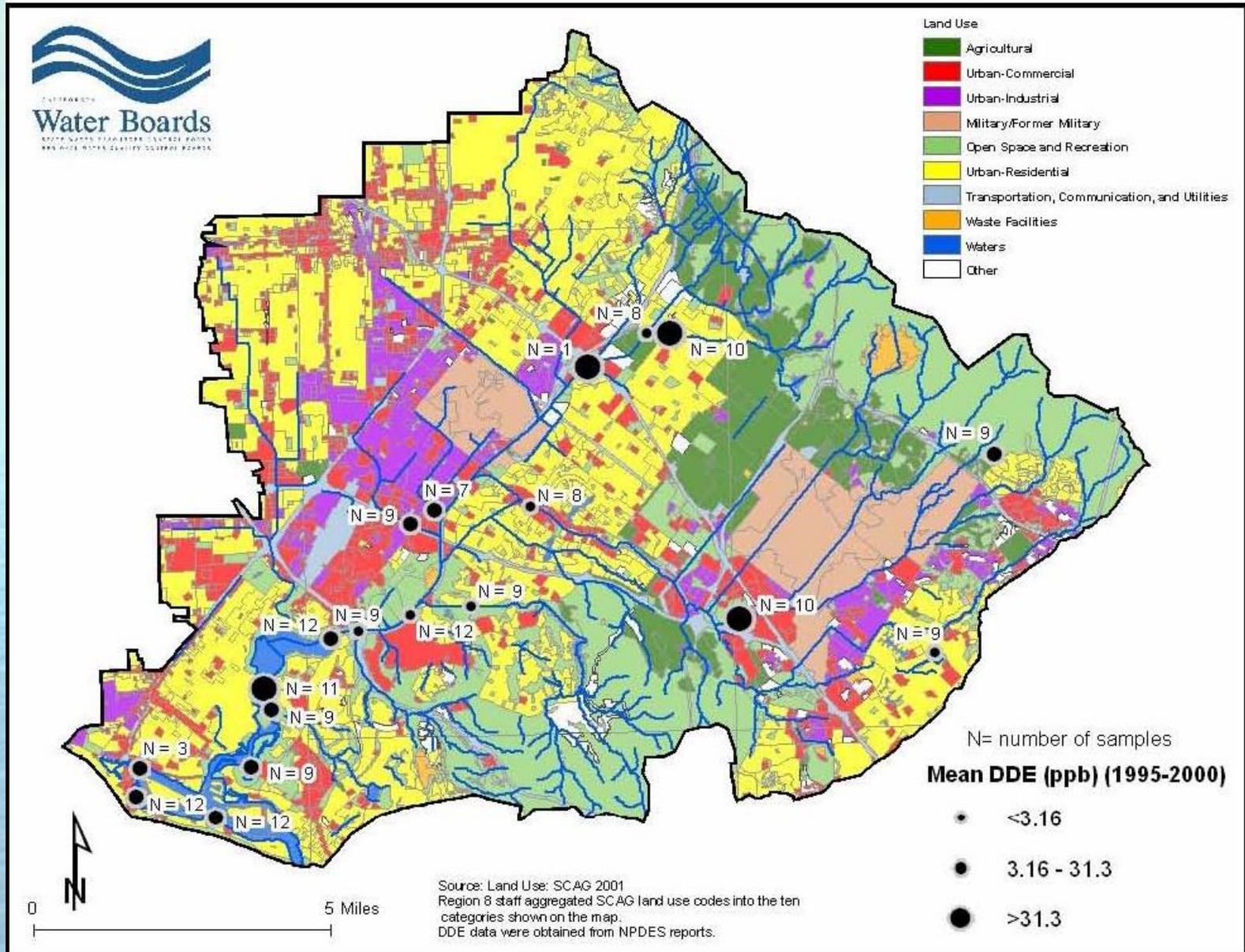


2005

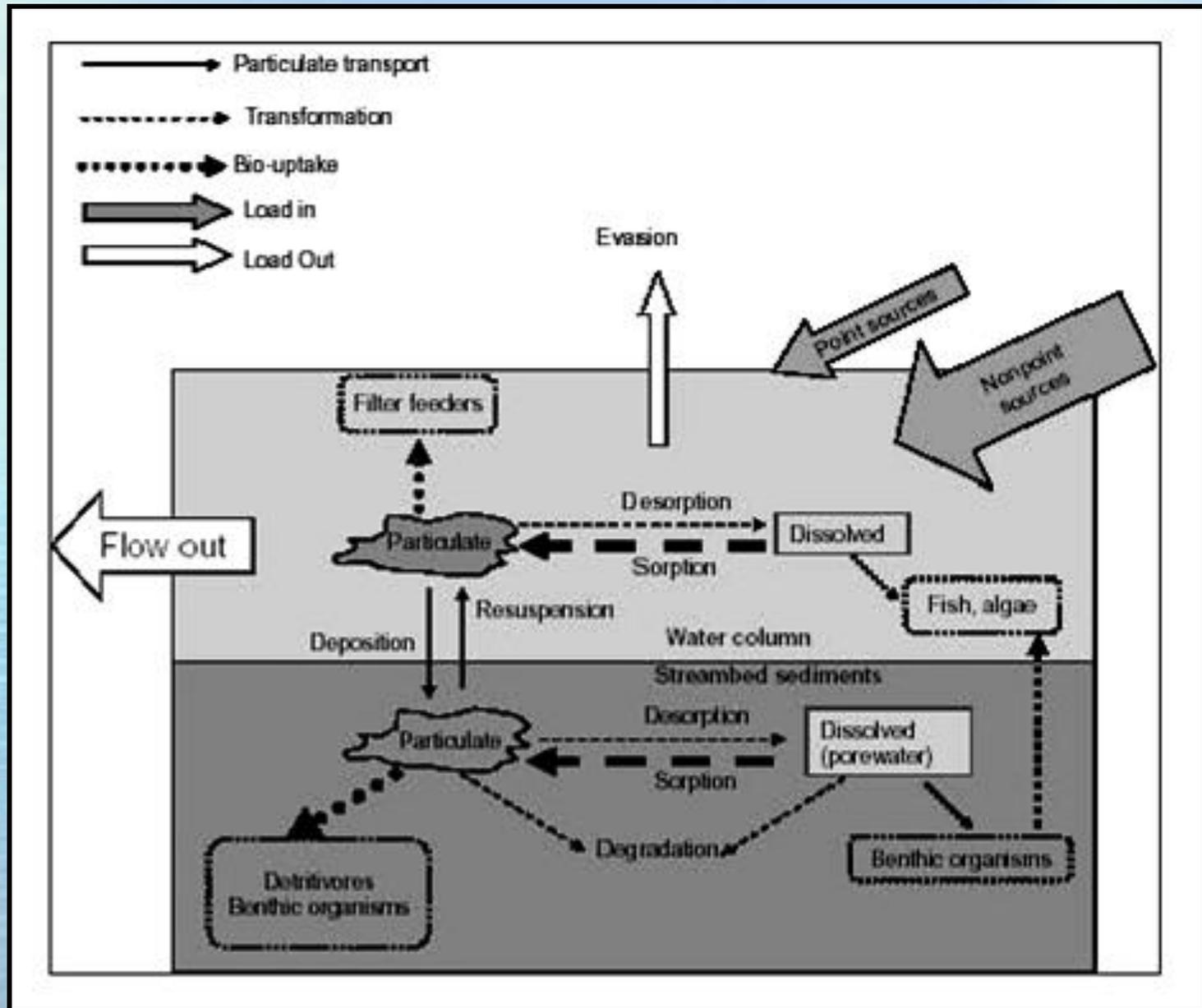
b.



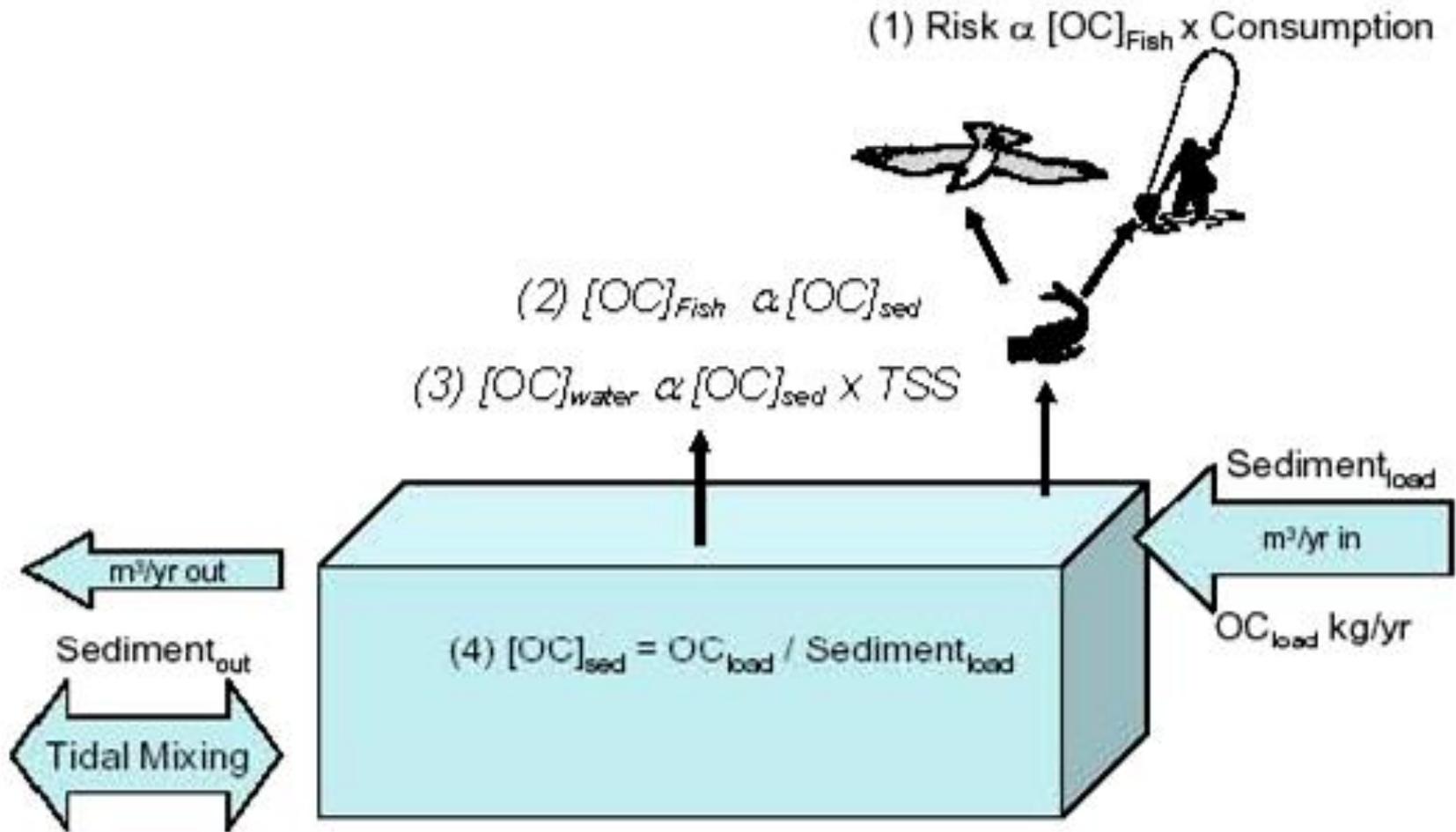
DDE Concentrations in Sediments



Key Transport and Transformation Processes of OC



Basic Linkages in the OCs TMDL Analysis



Food Web Model

